

Lesson 1 characteristics of living things.notebook

What is Biology? Write a definition.

Study of Life /
Living Things

Is a freshly picked apple nonliving, dead or alive? Why?



What characteristics do all living things share?
(list as many as you can)


1. All are composed of 1 or more cells
2. All obtain and use material and energy
the sun is the source of energy for all living things
plants use the sun's energy to produce oxygen
animals and plants use this oxygen to go through cellular respiration
3. All living things are based on a universal genetic code
4. All living things respond to stimuli
5. All living things reproduce
6. All living things go through growth and development.
7. All living things maintain a stable internal environment which is known as homeostasis
8. As a group living things evolve over time.

WHERE DO LIVING CELLS COME FROM?

Part 1

Development of the cell theory -- pages 8 to 12

1. Define spontaneous generation/abiogenesis
2. Explain what each of the following did to refute(go against) spontaneous generation/abiogenesis
 - a. Redi
 - b. Needham
 - c. Spallanzani
 - d. Pasteur
3. State the cell theory (page 170)

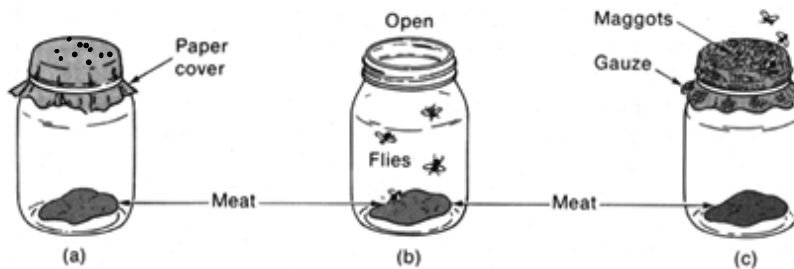
 <http://www.khanacademy.org/science/biology/human-biology/v/parts-of-a-cell?playlist=Biology>

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Spontaneous Generation / **Abiogenesis**

- life could arise from non living/dead matter
- worms from water
- beetles from dung

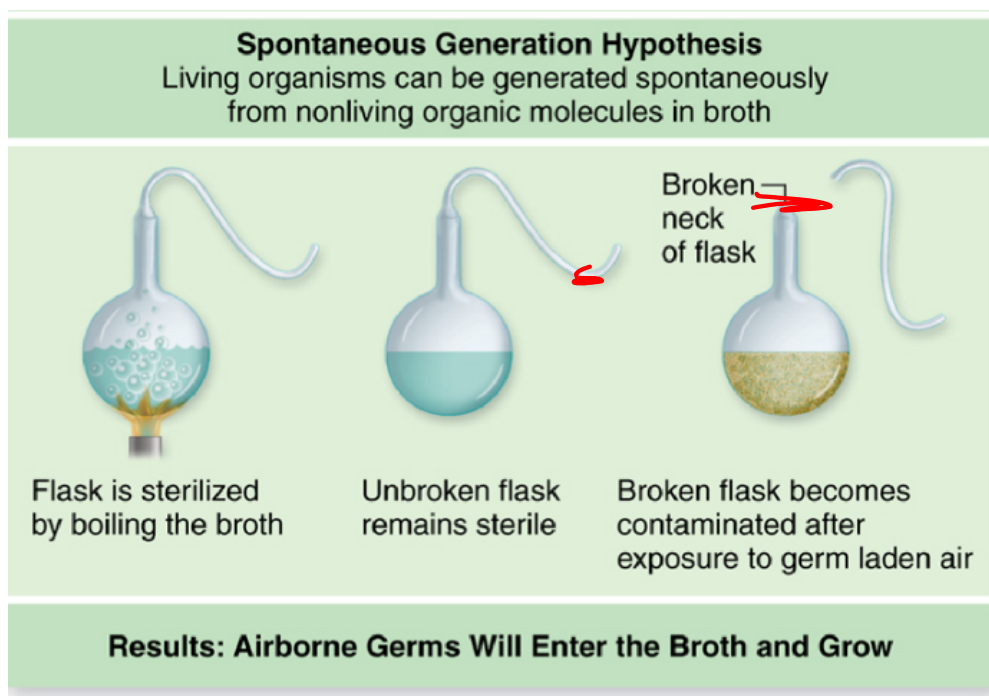
Redi - meat in jars



Needham - tried to prove Redi was wrong - boiled broth, wasn't sealed properly, micro-organisms appeared - said spontaneous generation was real

Spallanzani - boiled broth, sealed 1 container - left 1 open, sealed 1 had no micro-organisms, skeptics said it was because oxygen couldn't get in

Pasteur - created a swan neck flask, air could get in but micro-organisms got stuck in bottom



1. living things are composed of cells
2. cells come from other cells
3. cells are the basic unit of living things

Cells → tissues → Organs →
Organ systems → organism

Contributors to the Cell Theory:

1. Hooke - using a primitive microscope - saw empty spaces in cork tissue which he called "cells"
2. van Leeuwenhoek - used a hand held lens to observe tiny creatures swimming in some pond water
3. Schleiden - first to conclude plants were made of "cells"
4. Schwann - first to state all animals were made of cells
5. Virchow- first to conclude cells could only be produced from the division of other cells